

Supplementary Information: Tree height, microhabitat, and hydraulic traits shape drought responses in a temperate broadleaf forest

*Ian McGregor, Ryan Helcoski, Norbert Kunert, Alan Tepley, Erika Gonzalez-Akre,
Valentine Herrmann, Joseph Zailaa, Atticus Stovall, Norman Bourg?, William McShea?,
Neil Pederson, Lauren Sack, Kristina Anderson-Teixeira*

Supplementary Information

Table 1: Species-specific height regression equations

Species	Equations	r.2
Carya cordiformis	$0.348+0.808*x$	0.879
Carya glabra	$0.681+0.704*x$	0.855
Carya ovalis	$0.621+0.722*x$	0.916
Carya tomentosa	$0.776+0.701*x$	0.894
Fagus grandifolia	$0.708+0.662*x$	0.857
Liriodendron tulipifera	$1.32+0.524*x$	0.761
Quercus alba	$1.14+0.548*x$	0.647
Quercus prinus	$0.44+0.751*x$	0.869
Quercus rubra	$1.17+0.533*x$	0.773
all	$0.879+0.634*x$	0.857

Table 2: Candidate variables for best model

prediction	variable	variable_description	top_model
1.2	position_all	crown.position w/height	1999
2.2	height.ln.m	ln[height]	all
2.2	height.ln.m	ln[height]	1966
2.3	position_all	crown.position alone	1966
2.4	TWI.ln	ln[topographic.wetness.index]	all
2.4	TWI.ln	ln[topographic.wetness.index]	1977
2.4	TWI.ln	ln[topographic.wetness.index]	1999
3.1	rp	ring.porosity	1966
3.1	rp	ring.porosity	1999
3.2	PLA_dry_percent	percent.loss.area	all
3.2	PLA_dry_percent	percent.loss.area	1966
3.4	mean_TLP_Mpa	mean.turgor.loss.point	all
3.4	mean_TLP_Mpa	mean.turgor.loss.point	1977

how do we want to present Table S3? Would it be better as an image of an excel file, since it's so large? Did we want to keep all coefficients here?

SCBI ForestGEO Plot

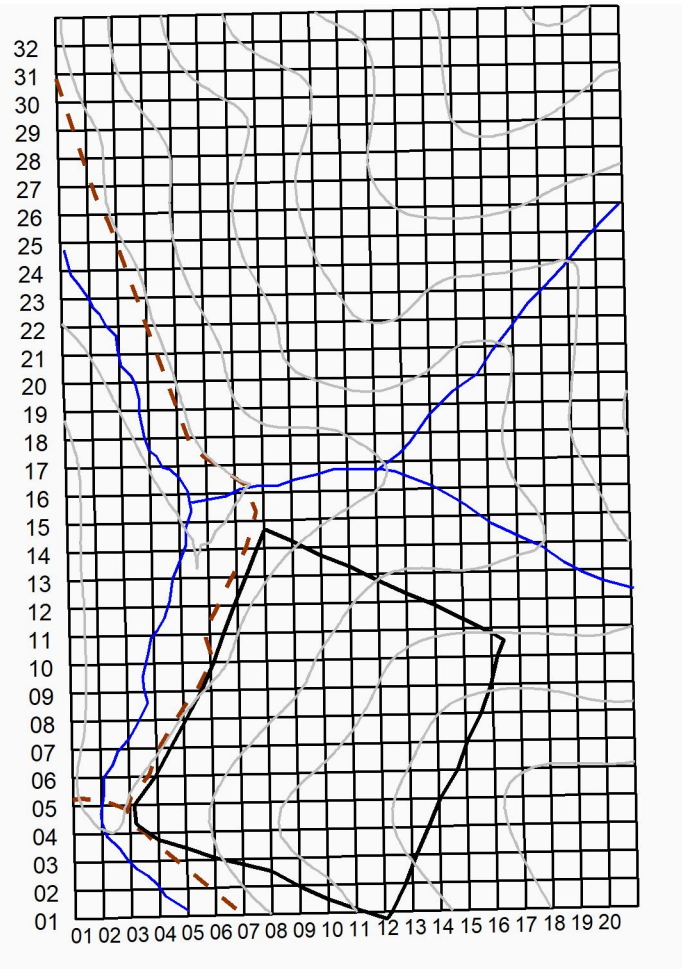
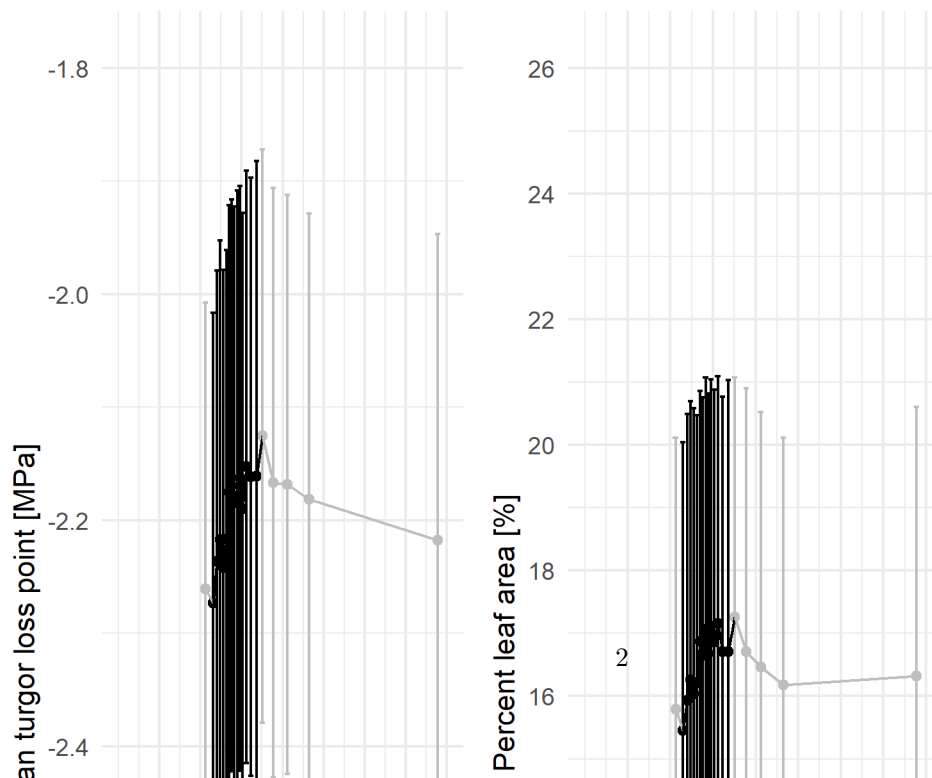


Figure 1: Map of ForestGEO plot



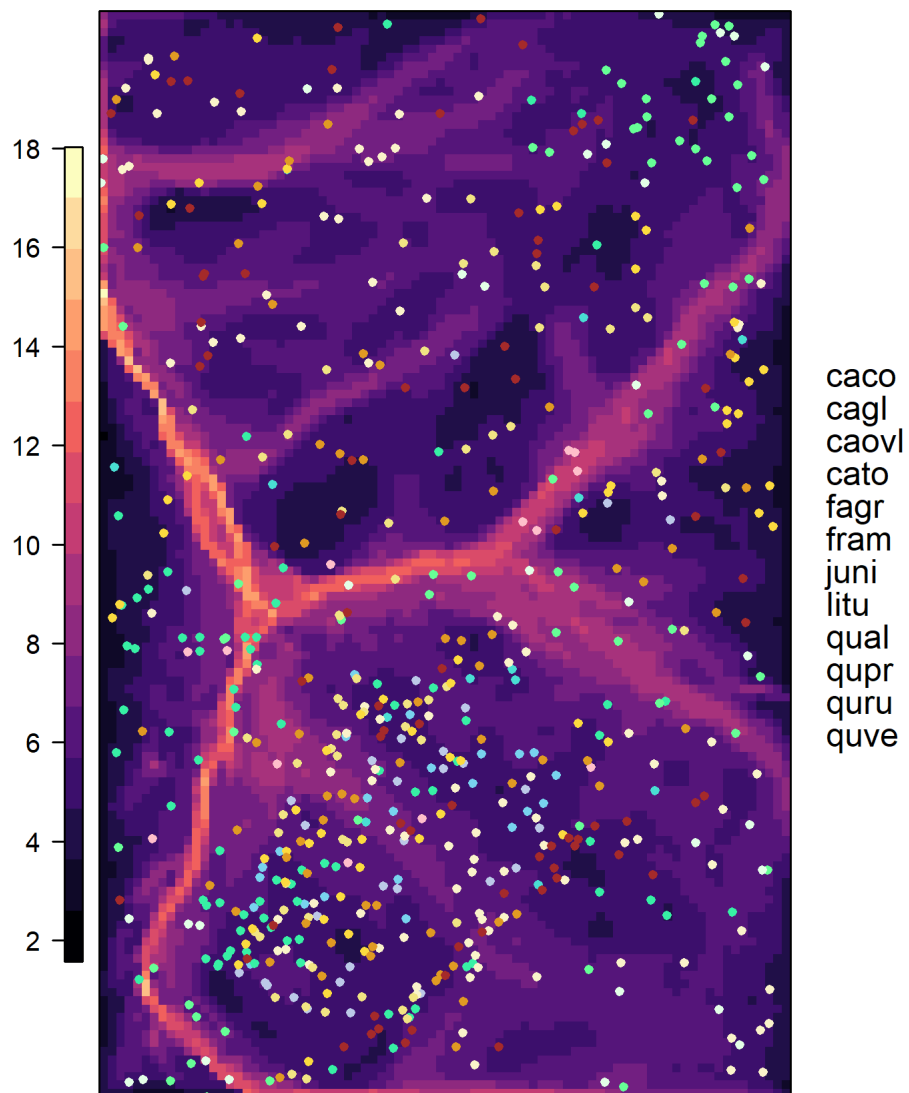


Figure 2: Location of cored trees

Table 3: Top model variations for each drought scenario, with dAICc values ≤ 2

Modnames	Delta_AICc	scen
resist.value ~ height.ln.m+TWI.ln+PLA_dry_percent+mean_TLP_Mpa+(1 sp/tree)	0.00	tree
resist.value ~ position_all+height.ln.m+TWI.ln+PLA_dry_percent+(1 sp/tree)	0.34	tree
resist.value ~ position_all+height.ln.m+TWI.ln+PLA_dry_percent+mean_TLP_Mpa+(1 sp/tree)	0.40	tree
resist.value ~ height.ln.m+TWI.ln+rp+PLA_dry_percent+(1 sp/tree)	0.52	tree
resist.value ~ height.ln.m+TWI.ln+PLA_dry_percent+(1 sp/tree)	0.57	tree
resist.value ~ position_all+height.ln.m+TWI.ln+rp+PLA_dry_percent+(1 sp/tree)	0.90	tree
resist.value ~ height.ln.m+rp+PLA_dry_percent+mean_TLP_Mpa+(1 sp)	0.00	x19
resist.value ~ height.ln.m+rp+PLA_dry_percent+(1 sp)	0.54	x19
resist.value ~ position_all+height.ln.m+rp+PLA_dry_percent+mean_TLP_Mpa+(1 sp)	1.09	x19
resist.value ~ height.ln.m+PLA_dry_percent+(1 sp)	1.43	x19
resist.value ~ height.ln.m+TWI.ln+rp+PLA_dry_percent+mean_TLP_Mpa+(1 sp)	1.98	x19
resist.value ~ position_all+TWI.ln+rp+mean_TLP_Mpa+(1 sp)	0.00	x19
resist.value ~ TWI.ln+rp+mean_TLP_Mpa+(1 sp)	0.09	x19
resist.value ~ height.ln.m+TWI.ln+rp+mean_TLP_Mpa+(1 sp)	1.12	x19
resist.value ~ position_all+height.ln.m+TWI.ln+rp+mean_TLP_Mpa+(1 sp)	1.91	x19
resist.value ~ position_all+height.ln.m+TWI.ln+rp+PLA_dry_percent+(1 sp)	0.00	x19
resist.value ~ position_all+height.ln.m+TWI.ln+rp+mean_TLP_Mpa+(1 sp)	0.09	x19
resist.value ~ position_all+height.ln.m+TWI.ln+rp+(1 sp)	0.46	x19
resist.value ~ TWI.ln+rp+PLA_dry_percent+(1 sp)	0.96	x19
resist.value ~ position_all+height.ln.m+rp+mean_TLP_Mpa+(1 sp)	1.03	x19
resist.value ~ position_all+height.ln.m+rp+PLA_dry_percent+(1 sp)	1.19	x19
resist.value ~ TWI.ln+rp+mean_TLP_Mpa+(1 sp)	1.33	x19
resist.value ~ position_all+height.ln.m+TWI.ln+rp+PLA_dry_percent+mean_TLP_Mpa+(1 sp)	1.85	x19
resist.value ~ position_all+height.ln.m+rp+(1 sp)	1.85	x19